

We claim:

1. An aqueous-based cross-linkable binder composition comprising
 - (A) an aqueous dispersion of an aldehyde-functional polyurethane having
5 a number average molecular weight of more than 1,000 and an average aldehyde functionality of ≥ 2 , which polyurethane comprises ionic and/or non-ionic dispersing groups, and
 - (B) a low-molecular weight aldehyde-reactive cross-linker selected from
10 the group of low-molecular weight polyamines, and low-molecular weight compounds comprising at least one group of one of the formulae $E^1-CHR^1-E^2$ and $H-C-(E^1E^2E^3)$, wherein $-E^1$, $-E^2$ and $-E^3$ are independently chosen from electron-withdrawing groups such as $-P(=O)-O-$, $-CO-$, $-CN$, $-SO_2-$, $-NO_2$ and wherein R^1 has the meaning of hydrogen or a hydrocarbon radical having 1 to 10 carbon
15 atoms.
2. The aqueous-based cross-linkable binder composition according to claim 1,
wherein the cross-linker comprises acetoacetate groups.
3. The aqueous-based cross-linkable binder composition according to claim 1,
20 wherein the number average molecular weight of the aldehyde-functional polyurethane is within the range of from 1,000 to 100,000.
4. The aqueous-based cross-linkable binder composition according to claim 1,
25 wherein the polyurethane is obtainable by reaction of:
 - a) an organic polyisocyanate,
 - b) an organic compound containing at least two isocyanate-reactive groups and having a number average molecular weight in the range of 400 to 6,000,
 - c) (a) mono-functional and/or poly-functional isocyanate-reactive
30 compound(s) bearing nonionic and/or ionic dispersing groups (or groups which may subsequently be converted into such dispersing groups),
 - d) an isocyanate-reactive aldehyde-functional compound,

e) optionally, an organic polyol having a weight average molecular weight of less than 400, and

f) optionally, active hydrogen-containing chain extending material.

- 5 5. The aqueous-based cross-linkable binder composition according to claim 4,
 wherein the ionic dispersing group is an anionic dispersing group selected
 from the group of carboxylate, sulphonate and/or phosph(on)ate salt groups.
- 10 6. The aqueous-based cross-linkable binder composition according to claim 4,
 wherein the for the nonionic dispersing group use is made of a C₁-C₄ alkoxy
 poly C₂-C₃ alkylene-oxide group in an amount between 2.5 and 20 wt.%,
 based on the polyurethane.
- 15 7. The aqueous-based cross-linkable binder composition according to claim 6,
 wherein the C₁-C₄ alkoxy poly C₂-C₃ alkylene-oxide group is used in an
 amount between 5 and 15 wt.%.
- 20 8. The aqueous-based cross-linkable binder composition according to claim 1,
 wherein the aldehyde-functional polyurethane to low-molecular weight
 aldehyde-reactive cross-linker equivalence ratio, based on the aldehyde-
 reactive groups of the low-molecular weight cross-linker and the aldehyde
 groups of the polyurethane, is in the range of from 0.5:1 to 5:1.
- 25 9. The aqueous-based cross-linkable binder composition according to claim 2,
 wherein the acetoacetate cross-linker is selected from the group of
 trimethylol propane triacetoacetate and trimethylol ethane triacetoacetate.
- 30 10. The aqueous-based cross-linkable binder composition according to claim 1,
 wherein the polyamine cross-linker is selected from the group of α,ω -
 alkylene diamines having from 2 up to 20 carbon atoms in the alkylene
 group, cyclohexylene diamines, 2-methyl piperazine, isophorone diamine,

adducts of a (poly)amino compound to a polyfunctional epoxy, isocyanate, maleinate, fumarate or (meth)acryloyl compound, and hydrogenated polynitro or polynitrile compounds.

5 11. The aqueous-based cross-linkable binder composition according to claim 10, wherein the polyamine cross-linker is 3-[2,2-bis-(3-amino-propoxymethyl)-butoxy]-propylamine.

10 12. A method of using the binder composition according to claim 1 in the production of primer compositions or clear coat compositions.

15 13. A method of using the binder composition according to claim 1 in the refinishing of cars.